

Gene test aims for better heart disease detection

October 4 2010, By MARILYNN MARCHIONE , AP Medical Writer

It's not a perfect test. Yet researchers report a key step for the first gene test aimed at reducing unnecessary angiograms - expensive and somewhat risky procedures that hundreds of thousands of Americans have each year to check for clogged arteries. Most of these exams, done in hospital cardiac catheterization labs, turn out negative.

A simple blood test to show who truly needs an angiogram would help, and 6,000 people have had the [gene test](#) since it went on sale last year. It has drawbacks. It suggests too many chronic chest pain sufferers have [heart disease](#) when they really don't, and misses it in others who do.

Several heart experts say they need to see better results before they'd use it. But similar tests are used now to guide [breast cancer](#) treatment and organ transplants, and many doctors think they'll eventually prove valuable for heart disease as more genes are discovered that affect risk.

On Tuesday, an American Heart Association journal will publish details of a big international effort by scientists to pool information and find more of these genes.

"This could ultimately really help to reduce unnecessary angiograms," Dr. Eric Topol, of the Scripps Research Institute in La Jolla, Calif., said of the test.

He led the study of the test, called Corus CAD. Topol has no financial ties to it, but some of the study authors work for its maker, CardioDx of

Palo Alto, Calif., which paid for the study. The research was published Monday in *Annals of Internal Medicine*.

Chest pain is never a symptom to ignore; it can be a sign of a blocked artery causing a heart attack. But millions of people have chronic chest pain that might mean arteries starting to clog or another problem, even just anxiety.

The new test is for these non-emergency cases. It costs \$1,195 and some insurers are paying for it on a case-by-case basis. Results take three days.

Unlike other gene tests that try to predict the odds of someday developing heart disease, this one aims to tell whether you have it now. Rather than looking for certain genes or mutations, it measures how active 23 key genes are.

Imagine a room with lots of people talking at once, trying to decide what to do. The test is like someone who can say which voices matter and what the decision is likely to be.

Scientists developed it from gene information on 226 patients, analyzed it in 640 patients, and on Monday reported a validation study of it in 526 others.

All had symptoms warranting an angiogram, in which a tube is placed in a blood vessel in the groin and dye is injected to make clogs in heart arteries show up on X-rays. It's the gold standard for diagnosing heart disease, but it costs more than \$30,000 and involves a large amount of radiation.

To decide whether to order one, doctors use formulas that consider a patient's age, gender and type of [chest pain](#). The gene test was compared to these methods. It improved diagnosis for 16 percent more patients

than the leading method, as verified by angiograms they had later. That means 16 out of 100 people received a correct answer they otherwise would not have had.

They are people like Stan Hall, 78, of Townsend, a small town in northern Wisconsin. He wasn't in the experiment, but his artery disease was caught by the gene test, which was recommended by his doctor because he was suffering from unexplained fatigue. He didn't have traditional symptoms yet wound up having seven blockages fixed.

"I couldn't understand how they could do a genetic test that could tell you (that) you have a problem," but it ended up being worth it, he said.

The test is an important step toward using genes to improve care, but the results "do not provide compelling evidence" that it should be widely used now, genetics expert Donna Arnett of the University of Alabama at Birmingham wrote in an editorial in the journal.

Dr. Harlan Krumholz, a Yale University cardiologist and health outcomes researcher, agreed.

"We are in an era where new tests and procedures must prove their value before we adopt them because we are dazzled by the technology," so this test should remain a research tool until its worth is clearer, he said.

If improved, the test might lead fewer doctors to order angiograms as "defensive medicine," said Dr. Daniel Rader, director of preventive cardiology at the University of Pennsylvania and a spokesman for the American College of Cardiology.

Heart disease may be a long shot in a patient, "but they don't want to take the chance of missing it," he said.

More information: Annals paper: www.annals.org/content/153/7/I-20
Heart Association: www.heart.org

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Citation: Gene test aims for better heart disease detection (2010, October 4) retrieved 18 April 2024 from <https://medicalxpress.com/news/2010-10-gene-aims-heart-disease.html>

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